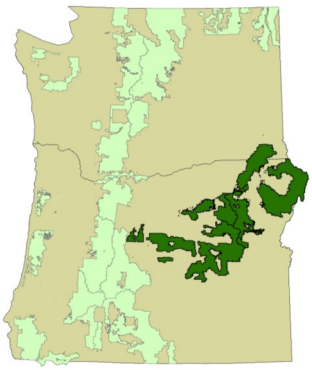
Wildlife and restoration of fire-dependent forests

Forests in the Blue Mountains have been degraded by invasive species, fire suppression, and some past forest and range management practices. In particular, the exclusion of natural fires has led to increased tree densities, which are altering wildlife habitat and increasing the risk of severe fire. Restoration of these fire-dependent forests will allow fire to resume its natural role and improve habitat for many wildlife species, particularly those adapted to open ponderosa pine forests. Mature, open ponderosa pine habitat has declined more than any other forested habitat in the Pacific Northwest.

Other unique and important wildlife habitats that could benefit from restoration in the Blue Mountains include aspen stands, meadows, and riparian areas. Restoring these habitats might include removing encroaching conifer trees, prescribed burning, planting deciduous shrubs, and fencing to exclude livestock.

While declining critical wildlife habitats are an urgent restoration need, there are other restoration considerations. Aquatic restoration, road management, forest health, socio-economic conditions, and reducing wildfire risk are also important.

Meadows are important habitats for many species, including elk, which have multi-million dollar impacts on recreation and land management in the Blue Mountains.



National forests in the Blue Mountains of eastern Oregon and Washington include the Malheur, Ochoco, Umatilla, and the Wallowa-Whitman.

Working together

The Blue Mountain national forests, in concert with their collaborators, will assess forest conditions, evaluate priority wildlife habitats, and determine the economic feasibility and social ramifications associated with restoration treatments. Working collectively, we can design projects that address a range of regional management concerns.

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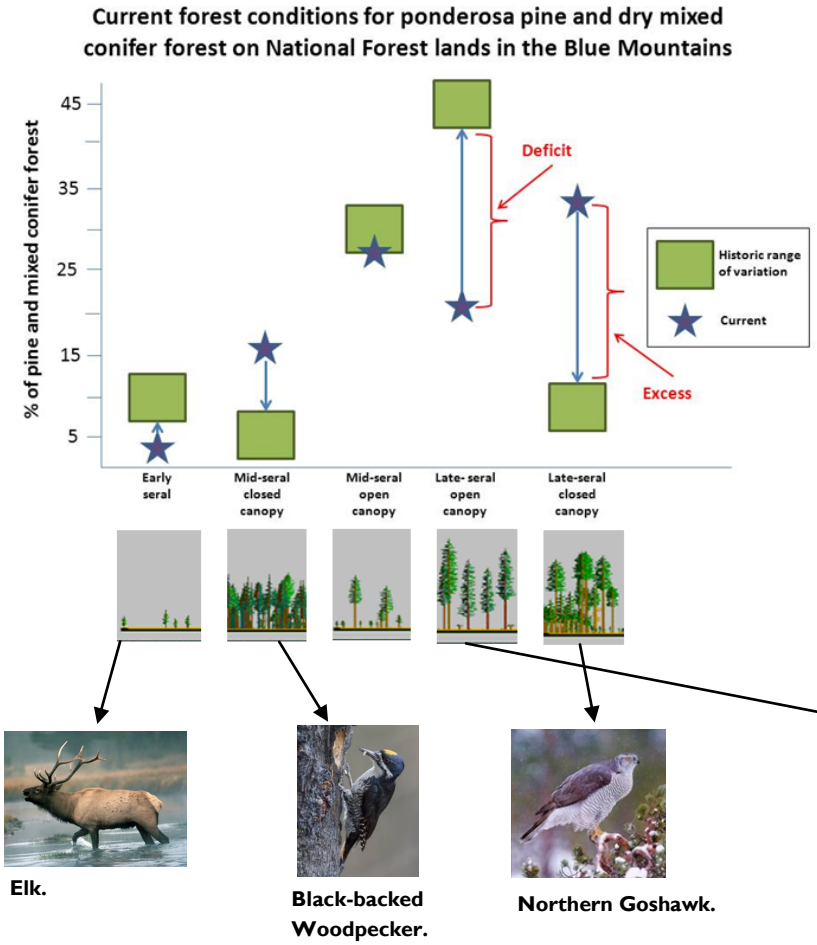
Creating more natural conditions

The dynamic set of conditions that existed before Euro-American settlement is known as the historical range of variation (HRV). HRV can be a useful baseline for defining wildlife targets and guiding wildlife restoration and conservation efforts. The further current conditions deviate from HRV, the less likely associated species populations will be sustainable.



Elk.

Black-backed Woodpecker.

Northern Goshawk.

This schematic shows that different wildlife species are associated with different forest structures. Almost all of these forest structures have departed from their HRV in the Blue Mountains. For example, late-seral (mature) open-canopy stands, used by White-headed Woodpeckers, are currently deficit. Early-seral habitats used by elk are also deficit. Black-backed Woodpeckers are primarily associated with recently burned areas, but also inhabit closed-canopy stands infested with bark beetles. These closed-canopy habitats, like the late-seral closed stands used by the Northern Goshawk, are currently in excess.

Restoring Blue Mountain forests to a more natural balance of these different forest structures will help return these habitats to a healthy, self-sustaining condition that more closely resembles its pre-disturbed state.

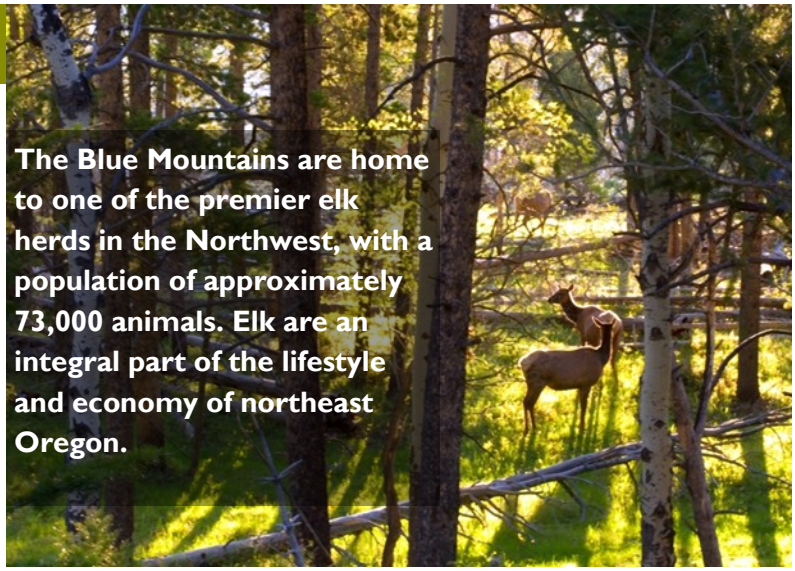
The **White-headed Woodpecker** is a focal species for mature, open-canopy dry forests. Focal species serve an "umbrella" role, by representing groups of other species with similar habitat requirements. For example, activities that improve woodpecker habitat should benefit other species associated with these forests, such as the Pygmy Nuthatch, White-breasted Nuthatch, and Flammulated Owl.

Thinning and under-burning dense forests improves habitat for White-headed Woodpeckers by opening up the canopy, and reducing shrubs and logs that provide habitat for small mammals, which are nest predators of the woodpeckers.

Care must be taken during treatments to minimize the loss of large ponderosa pine and snags that are important habitat components for the woodpecker.

Roads and wildlife

Roads can adversely affect wildlife species, through direct mortality from collisions with vehicles, displacement or avoidance of areas adjacent to roads, habitat fragmentation from road networks, access for hunting or poaching, and reduction of snag habitat adjacent to roads as a result of firewood collection or hazard tree management. Road closures and decommissioning can be an important part of wildlife habitat restoration.



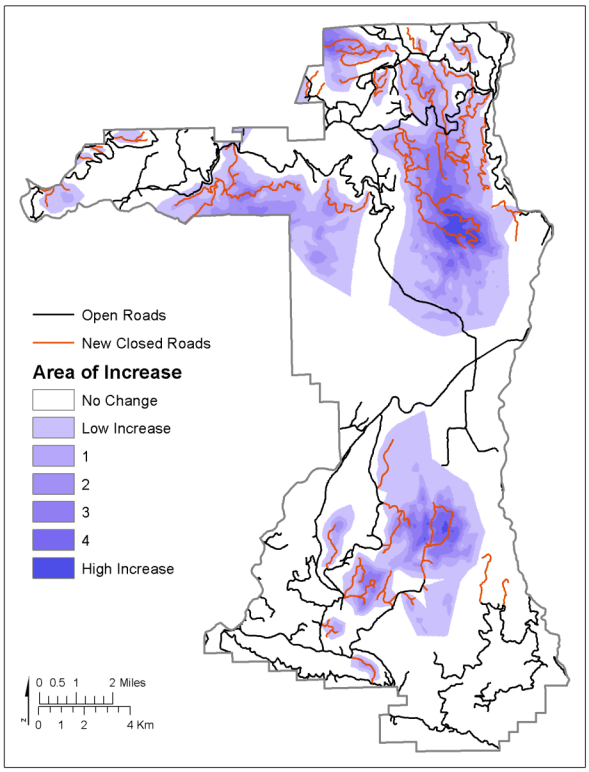
The Blue Mountains are home to one of the premier elk herds in the Northwest, with a population of approximately 73,000 animals. Elk are an integral part of the lifestyle and economy of northeast Oregon.

There are approximately 15,900 miles of open roads on national forest lands in the Blue Mountains. Areas with more than two miles of road per square mile are considered to be lower quality habitat for many wildlife species. Some particularly sensitive species, such as wide-ranging carnivores, avoid areas with more than one mile of road per square mile. Over half the area covered by fire-prone, dry forests outside of wilderness in the Blue Mountains exceeds the two mile per square mile threshold.

Road density in dry forests in the Blue Mountains

Density of open roads *(miles per square mile)*	% of the area of dry forest outside wilderness areas
<1	22
1-2	25
>2	53

Dry forests include ponderosa pine and dry mixed-conifer forests.



Elk avoid roads. This map illustrates the improvement in probability of elk use with road closures and other restoration activities.

Darker colors are areas with greater improvement in habitat conditions. The roads in red were closed, while the roads in black remain open.

Roads and nutrition play important roles in determining the distribution and abundance of native ungulates, including deer and elk, across the Blue Mountains. Restoration activities can improve the early-seral habitats that provide nutritious forage for elk and deer. Newly developed habitat use and nutrition models for elk in the Blue Mountains provide useful tools to help guide and evaluate different management scenarios.

Restoration

Wildlife-related recreation

Providing sustainable, functioning habitats and wildlife species is vital to maintaining the recreational use of our national forest lands and the economic well-being of the surrounding communities.

Hunters are some of our country's most ardent conservationists, and hunter spending is the lifeblood of numerous small businesses in many of the rural communities throughout the Blue Mountains. Hunters spend over $31 million in northeast Oregon each year. Elk hunters alone are estimated to number 45,800 annually.

Wildlife viewing is another increasingly popular recreational activity. In northeast Oregon alone, this activity generates almost $44 million annually.

We are in this together

Collaboration with partners is essential to implementing projects that benefit wildlife habitat in the Blue Mountains. Over a five year period (2007-2011) Blue Mountain national forests collaborated with partners on 265 projects to conserve, restore, and enhance wildlife habitat. The strength and commitment of our partnerships allow us to leverage our resources, giving us more restoration "bang for the buck."

Although much good work has been done, these forests continue to come under threats from wildfire, insects, disease, and human encroachment. Adding urgency to these is climate change. Our strategic restoration efforts can help wildlife habitats become more resilient to these threats in the future.

Partnerships are key to the success of habitat restoration.

Restoration can help allow for reintroduction of natural wildfire to these fire-adapted landscapes.